

We claim,

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1. A medical system, comprising:
  - a) an ambulatory medical device (MD) comprising MD electronic control circuitry that further comprises at least one MD telemetry system and at least one MD processor that controls, at least in part, operation of the MD telemetry system and operation of the medical device, wherein the medical device is configured to provide a treatment to a body of a patient or to monitor a selected state of the body; and
  - b) a communication device (CD) comprising CD electronic control circuitry that further comprises at least one CD telemetry system and at least one CD processor that controls, at least in part, operation of the CD telemetry system and operation of the communication device, wherein the CD telemetry system sends messages to or receives messages from the MD telemetry system, wherein at least a portion of the messages sent between the communication device and the medical device are directed to specific medical device, or a specific communication device, by inclusion of an MD identifier that identifies the medical device or a CD identifier that identifies the communication device.
2. The system of claim 1 wherein a first portion of the MD telemetry system is incorporated into the MD processor and a second portion of the MD telemetry system is external to the MD processor, or wherein a first portion of the CD telemetry system is incorporated into the CD processor and a second portion of the CD telemetry system is external to the CD processor.
3. The system of claim 2 wherein (1) the MD electronic control circuitry comprises at least one external MD functional module, other than the second portion of the MD telemetry system, that is external to the MD processor, (2) the CD electronic control circuitry comprises at least one external CD functional module, other than the second portion of the CD telemetry system, that is external to the CD processor, (3) the MD processor comprises an internal MD CPU and at least one

other internal MD functional module, or (4) the CD processor comprises an internal CD CPU and at least one other internal CD functional module.

4. The system of claim 1 wherein the identifier is for the medical device and wherein the communication device sends the message and the medical device receives the message.

5. The system of claim 1 wherein a portion of the possible messages between the communication device and medical device are nonspecifically directed to the medical device or the communication device by inclusion of a universal identifier in a transmitted signal.

6. The system of claim 1 wherein the medical device and the communication device exchange MD and CD identifiers, respectively, via one or more messages that are transmitted with a universal identifier.

7. The system of claim 1 wherein a particular medical device is configured to accept only messages sent with a universal identifier or messages sent using the specific MD identifier from a specific communication device and wherein messages sent with the MD identifier have the CD identifier of specific communication device explicitly or implicitly set forth therein.

8. The system of claim 7 wherein a cyclical redundancy code (CRC) is transmitted as part of the message, wherein the medical device must confirm the integrity of the message by comparing a CRC calculated at least in part from the contents of the message with the transmitted CRC, and wherein the CD identifier is incorporated into the transmitted CRC.

9. The system of claim 1 wherein the communication device has a specific CD identifier and wherein the specific communication device is configured to accept only messages sent from the medical device that include the specific CD identifier and wherein messages sent with the to the communication device from the medical device have the MD identifier of the medical device set forth explicitly or implicitly therein.

10. The system of claim 1 wherein a cyclical redundancy code (CRC) is transmitted as part of a message to the communication device, wherein the communication device confirms the integrity of the message by comparing the transmitted CRC to a CRC calculated at least in part from the message, and wherein the MD identifier is incorporated into the transmitted CRC and is used as part of the calculation when deriving the calculated CRC.

11. The system of claim 1 wherein the identifier sent with the message is used alone, or in combination with other information, in establishing frame synchronization.

12. The system of claim 1 wherein the medical device comprises an implantable infusion pump for selectively dispensing a drug.

13. The system of claim 12 wherein the drug comprises insulin.

14. The system of claim 1 wherein the medical device comprises an implantable sensor for sensing a selected state of the body.

15. The system of claim 14 wherein the sensor comprises a glucose sensor.

16. The system of claim 1 wherein the medical device comprises an implantable electrode for selectively stimulating a portion of the body of the patient.

17. A medical system, comprising:

a) an ambulatory medical device (MD) comprising MD electronic control circuitry that further comprises at least one MD telemetry system and at least one MD processor that controls, at least in part, operation of the MD telemetry system and operation of the medical device, wherein the medical device is configured to provide a treatment to a body of a patient or to monitor a selected state of the body; and

b) a communication device (CD) comprising CD electronic control circuitry that further comprises at least one CD telemetry system and at least one CD processor that controls, at least in part, operation of the CD telemetry system and

operation of the communication device, wherein the CD telemetry system sends messages to or receives messages from the MD telemetry system,

wherein the communication device has a CD telemetry identifier and the medical device has a MD telemetry identifier wherein the length of the CD telemetry and MD telemetry identifiers are different.

18. The system of claim 17 wherein a first portion of the MD telemetry system is incorporated into the MD processor and a second portion of the MD telemetry system is external to the MD processor, or wherein a first portion of the CD telemetry system is incorporated into the CD processor and a second portion of the CD telemetry system is external to the CD processor.

19. The system of claim 18 wherein (1) the MD electronic control circuitry comprises at least one external MD functional module, other than the second portion of the MD telemetry system, that is external to the MD processor, (2) the CD electronic control circuitry comprises at least one external CD functional module, other than the second portion of the CD telemetry system, that is external to the CD processor, (3) the MD processor comprises an internal MD CPU and at least one other internal MD functional module, or (4) the CD processor comprises an internal CD CPU and at least one other internal CD functional module.

20. The system of claim 17 wherein the medical device comprises an implantable infusion pump for selectively dispensing a drug.

21. The system of claim 20 wherein the drug comprises insulin.

22. The system of claim 17 wherein the medical device comprises an implantable sensor for sensing a selected state of the body.

23. The system of claim 22 wherein the sensor comprises a glucose sensor.

24. The system of claim 17 wherein the medical device comprises an implantable electrode for selectively stimulating a portion of the body of the patient.

25. A medical system, comprising:

a) an ambulatory medical device (MD) comprising MD electronic control circuitry that further comprises at least one MD telemetry system and at least one MD processor that controls, at least in part, operation of the MD telemetry system and operation of the medical device, wherein the medical device is  
5 configured to provide a treatment to a body of a patient or to monitor a selected state of the body; and

b) a communication device (CD) comprising CD electronic control circuitry that further comprises at least one CD telemetry system and at least one CD processor that controls, at least in part, operation of the CD telemetry system and  
10 operation of the communication device, wherein the CD telemetry system sends messages to or receives messages from the MD telemetry system,

wherein at least one of the MD telemetry system or the CD telemetry system is configured to establish frame synchronization and to confirm that a message is intended specifically for the medical device or the communication device,  
15 respectively, by confirming receipt of a predefined identifier.

26. The system of claim 25 wherein a first portion of the MD telemetry system is incorporated into the MD processor and a second portion of the MD telemetry system is external to the MD processor, or wherein a first portion of the CD  
20 telemetry system is incorporated into the CD processor and a second portion of the CD telemetry system is external to the CD processor.

27. The system of claim 26 wherein (1) the MD electronic control circuitry comprises at least one external MD functional module, other than the second portion of the MD telemetry system, that is external to the MD processor, (2) the CD  
25 electronic control circuitry comprises at least one external CD functional module, other than the second portion of the CD telemetry system, that is external to the CD processor, (3) the MD processor comprises an internal MD CPU and at least one other internal MD functional module, or (4) the CD processor comprises an internal CD CPU and at least one other internal CD functional module.

28. The system of claim 25 wherein the predefined identifier uniquely identifies  
30 a specific medical device or communication device, respectively, for which the message is intended.

29. The system of claim 25 wherein the medical device comprises an implantable infusion pump for selectively dispensing a drug.

30. The system of claim 29 wherein the drug comprises insulin.

31. The system of claim 25 wherein the medical device comprises an implantable sensor for sensing a selected state of the body.

32. The system of claim 31 wherein the sensor comprises a glucose sensor.

33. The system of claim 25 wherein the medical device comprises an implantable electrode for selectively stimulating a portion of the body of the patient.

34. The system of claim 25 wherein frame synchronization is first established and then the predefined identifier is confirmed.

35. The system of claim 25 wherein frame synchronization is established using at least in part the predefined identifier.

36. A medical system, comprising:

a) an ambulatory medical device (MD) comprising MD electronic control circuitry that further comprises at least one MD telemetry system and at least one MD processor that controls, at least in part, operation of the MD telemetry system and operation of the medical device, wherein the medical device is configured to provide a treatment to a body of a patient or to monitor a selected state of the body; and

b) a communication device (CD) comprising CD electronic control circuitry that further comprises at least one CD telemetry system and at least one CD processor that controls, at least in part, operation of the CD telemetry system and operation of the communication device, wherein the CD telemetry system sends messages to or receives messages from the MD telemetry system,

wherein the communication device requires pre-knowledge of a telemetry identifier for the medical device prior to sending any messages to the medical device that can be used by the medical device to significantly modify the medical functioning of the medical device, or

wherein the medical device requires pre-knowledge of a telemetry identifier for the communication device prior to the medical device accepting any messages from the communication device that can be used by the medical device to significantly modify the medical functioning of the medical device.

37. The system of claim 36 wherein a first portion of the MD telemetry system is incorporated into the MD processor and a second portion of the MD telemetry system is external to the MD processor, or wherein a first portion of the CD telemetry system is incorporated into the CD processor and a second portion of the CD telemetry system is external to the CD processor.

38. The system of claim 37 wherein (1) the MD electronic control circuitry comprises at least one external MD functional module, other than the second portion of the MD telemetry system, that is external to the MD processor, (2) the CD electronic control circuitry comprises at least one external CD functional module, other than the second portion of the CD telemetry system, that is external to the CD processor, (3) the MD processor comprises an internal MD CPU and at least one other internal MD functional module, or (4) the CD processor comprises an internal CD CPU and at least one other internal CD functional module.

39. The system of claim 36 wherein the medical device comprises an implantable infusion pump for selectively dispensing a drug.

40. The system of claim 39 wherein the drug comprises insulin.

41. The system of claim 36 wherein the medical device comprises an implantable sensor for sensing a selected state of the body.

42. The system of claim 41 wherein the sensor comprises a glucose sensor.

43. The system of claim 36 wherein the medical device comprises an implantable electrode for selectively stimulating a portion of the body of the patient.